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ABSTRACT

A generic competence model for effective nursing performance was developed and compared with nurses' perceptions of job elements that discriminate outstanding nursing performance and that are critical in the selection and education of nurses. The model is to be used to validate the nursing faculty's existing competence model for nursing education at Alverno College's 4-year program. The model will also provide descriptions of effective nursing performance to enable further development of learning objectives and experiences. Finally, the model will provide additional criteria for assessing student nursing performance. Interviews were conducted with nurses from agencies in different settings: acute care, long-term care, and community health. A nomination questionnaire elicited lists of nurses considered to be outstanding. The nurses were administered a behavioral event interview to determine what they did and how they felt about work situations in which they felt effective or ineffective. Background information on the respondents was also obtained, and a job element inventory provided ratings of behaviors that are perceived as important to outstanding nursing performance. The study resulted in descriptions of nine generic abilities, which are appended. Also attached is "A Generic Competence Model for Effective Nursing Performance: A Codebook." (SW)

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DEVELOPING A PROFESSIONAL COMPETENCE MODEL FOR NURSING EDUCATION

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Office of Research & Evaluation/Division of Nursing
ALVERNO COLLEGE

FINAL REPORT TO THE NATIONAL INSTITUTE OF EDUCATION: RESEARCH REPORT NUMBER NINE

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Research Reports:

One: Friedman, M., Mentkowski, M., Earley, M., Loacker, G., & Diez, M. Validating Assessment Techniques in an Outcome-Centered Liberal Arts Curriculum: Valuing and Communications Generic Instrument, 1980.

Two: Friedman, M., Mentkowski, M., Deutsch, B., Shovar, M.N., & Allen, Z. Validating Assessment Techniques in an Outcome-Centered Liberal Arts Curriculum: Social Interaction Generic Instrument, 1982.

Three: Assessment Committee/Office of Research and Evaluation. Validating Assessment Techniques in an Outcome-Centered Liberal Arts Curriculum: Insights From the Evaluation and Revision Process, 1980.

Four: Assessment Committee/Office of Research and Evaluation. Validating Assessment Techniques in an Outcome-Centered Liberal Arts Curriculum: Integrated Competence Seminar, 1982.

Five: Assessment Committee/Office of Research and Evaluation. Validating Assessment Techniques in an Outcome-Centered Liberal Arts Curriculum: Six Performance Characteristics Rating, 1983.

Six: Mentkowski, M., & Strait, M. A Longitudinal Study of Student Change in Cognitive Development and Generic Abilities in an Outcome-Centered Liberal Arts Curriculum, 1983.

Seven: Much, N., & Mentkowski, M. Student Perspectives on Liberal Learning at Alverno College: Justifying Learning as Relevant to Performance in Personal and Professional Roles, 1982.

Eight: Mentkowski, M., Much, N., & Giencke-Holl, L. Careering After College: Perspectives on Lifelong Learning and Career Development, 1983.

Nine: Mentkowski, M., DeBack, V., Bishop, J., Allen, Z., & Blanton, B. Developing a Professional Competence Model for Nursing Education, 1980.

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ABSTRACT

The major purpose of this study was to create a generic competence model for effective nursing performance. The major outcome is a codebook describing nine generic abilities. The competences were derived after an intensive qualitative analysis of performance interviews from 80 outstanding and good nurses in which nurses discussed what they actually did in situations that led to effective and ineffective outcomes. A peer nomination questionnaire yielded outstanding and good groupings of nurses; a background questionnaire provided information on education and experience. Nurses were employed in a long-term care setting, an acute care setting and a community health agency.

Nurses perform a great deal of Helping, a competence which fits with the more traditional role of the nurse. But they also perform Independence, Influencing and Coaching to a large degree, and they perform Conceptualizing. These competences describe today's nurse as an active, influential professional who demonstrates independence and analytical thinking in her role. More of these active competences were demonstrated in the community health agency than in the acute care agency; the acute care agency and the long-term care agency seem to have a more structured environment with regard to roles and tasks. Nurses in a more structured situation may not demonstrate some of these abilities to a greater degree because of the demands of the setting.

The more experienced or more educated nurse is likely to demonstrate more Conceptualizing, less negative Conceptualizing, more Ego Strength, and more Independence, Influencing and Coaching. These competences taken together seem to have an underlying component--an active, thinking, influential style where the nurse also strives to assist the client to take on more responsibility for his or her own care. Some of these abilities appear more in the community agency, an agency we believe is likely to be more supportive of these competences, where more educated nurses are employed, and where nurses are likely to have more role autonomy.

This study contributes to efforts by nursing associations and educational programs to assess effective nurse competences. In this study, nurse educators and nurse practitioners were able to cooperate in a common effort to develop a competence model that can improve nursing education. The 350 situations described by the nurses in the performance interviews can also serve to improve case study and other instructional and assessment materials. Nursing curriculum needs to built on the performance abilities of effective nurses.

ACKNOWLEDGEMENTS

We wish to thank the three health care agencies and their administrators whose cooperation made this study possible. We acknowledge the contributions of the nurses and administrators at these organizations who agreed to share their experiences with us.

Lois Grau and Barbara Blanton conducted the interviews and organized the data into writeups. Susan McAllister coded interviews and assisted in the data analysis; Eunice Monroe served as data manager.

George Klemp, Jr. of McBer and Company trained the interviewers and shared his expertise with Job Competence Assessment. David McClelland conducted a session for us on interview analysis and competence identification using the Alverno data. We appreciate the efforts of all persons who worked to make this study a reality.

Paper presented at the Annual Meeting of the American Educational Research Association
Boston, April 1980

DEVELOPING A PROFESSIONAL COMPETENCE MODEL FOR NURSING EDUCATION[1]

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ALVERNO COLLEGE

INTRODUCTION

One purpose of the present study is to create a generic competence model for effective nursing performance. This model has three potential uses for nursing educators. First, the model will be used to validate the nursing faculty's already existing competence model for nursing education in Alverno's four year program (Alverno College Nursing Faculty, 1979). The model can also be used by other nurse educators to create a competence-based curriculum. Second, the model will provide descriptions of effective nursing performance to enable further development of learning objectives and experiences based on a range of examples drawn from interviews of effective practicing professionals. Third, the model will provide additional criteria for assessing student nursing performance, based to a greater extent, on the expectations of a student's future colleagues.

Another purpose of this study is to compare this generic competence model of effective nursing performance with nurses' perceptions of those job

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[1]The authors express their appreciation and deep gratitude to those nurses who participated, and to the agencies whose cooperation and support made this study possible.

elements that discriminate outstanding nursing performance, that are not descriptive of marginal performance, and that are critical in the selection and education of nurses.

This study is meant to bridge the gap between the expert judgment of nursing educators who create nursing programs and the expert judgment of practicing nurses. There are opportunities for practitioners to affirm or challenge nursing education during a student's clinical experiences. The greater proportion of nursing education faculty—at least at Alverno—have been or are currently practitioners. Research studies that systematically provide an opportunity for nurses to input descriptions of their own performance and their current perceptions of what is critical for nursing performance are also necessary. Tapping the practicing nurse's performance and perceptions is one way to establish the external validity of an educational program designed by nursing faculty.

This is a particularly important need in the nursing profession today. The traditional view of the nurse is rapidly changing. New goals for the nurse, and new descriptions of her role are being formulated. What should be the basis for these new goals and roles? Looking to the future, and the future role of the nurse in the burgeoning health field, is critical. Toward what abilities should nursing programs prepare their students? Faculty must prepare students not just for a future, idealistic role, but also for colleagues' present expectations. Entry-level abilities are essential to the student's successful performance in her beginning role as a nurse. But what are the critical abilities toward which we must prepare her to function, not only in the present, but also in her future role as a supervisor or change agent? The current study proposes to ask the practicing nurse to describe her performance in the context of her situation, and to

identify critical abilities for our attention as nurse educators.

Educating nurses toward generic competences that will transfer across settings is critical to educating them for the future. Generic abilities provide a solid base of expertise that future colleagues can count on as they involve recent graduates in on-the-job training in a specific position. In our view, generic abilities will also enable the nurse to respond to the increasing complexity of medical procedures and equipment, the development of nursing specialties, the shift from client care in hospitals to care in outpatient settings, the move to emphasizing wellness and education for preventing illness, and the move by nurses toward independent practice.

Is it possible to identify generic abilities that cross settings so that nursing programs can educate students to perform in a variety of situations requiring nursing skills? Are some competences more necessary in an acute care agency vs. a long-term care agency? Are some abilities more likely to characterize the nurse in a community agency? Can we direct a student toward a particular nursing specialty? Do we know the extent to which some abilities, which may be her strengths, are more required in some settings than others?

Creating a picture of these generic abilities is also critical for the future careering of the nurse. The transition from student nurse to professional nurse is one step; the transition from staff nurse to an outstanding nurse who is promoted and who has further career options is a second step. Is the nurse prepared for both? She must graduate with abilities that will allow her to achieve promotion, to change fields if her interests change, to change with the changes in her profession. Is she educated to continue life-long learning in her profession?

What abilities discriminate the more effective or "outstanding" nurse,

who deserves promotion and more responsibility? Are some abilities developed only as the result of experience? How do supervisory personnel differ from the staff nurse with regard to these abilities?

If a nurse has a bachelor's degree, will she perform more effectively? Should higher education requirements be adopted for nurses?

If nursing educators are to meet their goals, they must prepare students in those competences that will lead to her effectiveness, that will transfer across situations and settings, and that will form the basis for the more developed competences that she demonstrates as an experienced nurse.

OBJECTIVE A: Derive a generic competence model for effective nursing performance across three settings: acute care agency, long-term care agency and community agency

The first, and major objective is to derive a generic competence model for effective nursing performance across three settings. By the term generic competence, we refer to an ability that is characteristic of the person that can be transferred to and demonstrated in a variety of situations. This is in contrast to descriptions of specific behaviors or tasks expected in any particular job. Rather, generic competences are characteristics of job performers that enable the individual to perform in a number of often unrelated situations. Generic competences should enable performance across more than one role, and may even be evidenced across a number of organizations or institutions in which he or she performs (Alverno College Faculty, 1979; Klemp, 1977). The identification of generic competences in nursing places the greater emphasis on the abilities of the person leading to effective performance on the job, in contrast to a greater emphasis on effective performance as a function of the job environment or the characteristics of the organization or institution in which the

person works. While institutional policies, characteristics, and constraints certainly affect performance, it is difficult for nursing faculty to prepare a student for a specific institution. Rather, faculty must be concerned with preparing a student for a variety of institutions, and for future performance across a variety of roles and positions.

Another consideration in creating a generic competence model, is that the model be descriptive of effective performance. In this study, we are interested in competences that can be explicitly related to effective performance. We believe that competences cause effective performance. If we develop such competences in students, they will be more likely to demonstrate effective performance in the future. For a competence to become part of the competence model, we must assure ourselves that it is causally related to an effective outcome in the situation in which it was demonstrated.

In addition, we are interested in developing a competence model that is derived from a comparison between the performance of the most effective nurses and other nurses in a particular setting or agency. Therefore, we have asked nurses themselves to nominate those nurses whom they consider "outstanding." Since we wish to interview nurses for descriptions of their behavioral performance, and to derive a competence model describing effective performance, we felt that "outstanding" should be defined by persons who are most likely in a position to observe the behavioral performance of their colleagues. They are in the best position to make those observations, and to identify those who stand out as particularly effective. Further, we wished to compare these nurses with their peers (whom we call "good" nurses). While the comparison group consists of nurses who have not been nominated as outstanding by their peers, they are

nurses who are employed by the institution, will presumably continue to be employed, and so we assume they are meeting the criteria for performance of the institution in which they are working.

One argument against using such a nomination procedure is that we can question its validity. Since nurses are nominating nurses, are we actually equating the term "outstanding" with "most popular and well-liked"? It may well be that some personal characteristics that lead to popularity are indeed related to outstanding performance. Since a major purpose of this study is to validate an already existing nursing program, we were especially concerned with asking the nurses themselves. A later phase of this study calls for creation of an "expert panel" of nurses—made up of a range of positions in the profession—to read each of the behavioral event interview write-ups and to independently judge each nurse as "outstanding" or "good." Additional analyses of the data will be performed on the basis of these independent judgments.

A major consideration in this study concerns the kind of data collected to enable derivation of generic competences. Since our interest is in deriving generic competences from behavioral data, we have been careful to employ a technique that focuses on the performance of nurses—what they actually do. According to Klemp (1977), the Behavioral Event Interview (McClelland, 1978) used in this study differs from a standard job analysis in two ways. First, it is based on Flanagan's critical incident technique (1954), which is used to reconstruct behaviors of the nurse which she herself selects as contributing to both effective and ineffective performance. Rather than focus on what the nurse thinks made the performance effective or ineffective, we ask her to recollect her experience and tell us what she actually did. The data are then in a behaviorally specific form.

Even though the nurse may make judgments or inferences about why a particular outcome was successful, the researcher can separate these judgments from her actual performance in the situation. An observer collecting performance data may have to collect many samples in order to assure collection of critical behaviors, making the present method more parsimonious and cost efficient.

Another reason for using the Behavioral Event Interview in job competence assessment is to allow the participant to interpret the context in which the behavior is performed. The interviewer has an opportunity to collect data that was effective or ineffective in a particular context, and to ask the interviewee for interpretations of the context. Further, the interviewer, who may of course elicit certain behaviors due to his or her presence in the interview, is not an observer during the behavioral event. Another advantage of the Behavioral Event Interview, is that the interviewer can ask the nurse what she was thinking or feeling during the time she was acting in the situation, and what happened prior to the situation that may have affected what she did in a current situation being discussed. In this way, the nurse's knowledge, attitudes, thinking processes, intentions and perspectives on her performance, as well as her motivation during the situation can be collected and subjected to analysis. The actual observable behavior collected in a job analysis by an observer tells only one small part of the total schema of abilities actually being demonstrated in a particular situation. Such things as empathy or a positive bias toward people are not directly observable. Our data collection technique is, however, no substitute for carefully planned studies investigating the impact of institutional policies, constraints, expectations, and procedures on nursing performance, and we encourage studies of this nature as well.

Still another concern in deriving a generic competence model descriptive of effective performance is to describe abilities that can be expected to cross nursing specialties, roles and institutions. Nursing programs must prepare students to take on a wide variety of roles. Further, many abilities that may not be required at entry level into the profession, such as leadership and management skills, may be required later on. For this reason, we selected three settings we believe are quite different in their expectations for nursing performance: an acute care agency, a long-term care agency, and a community agency. We selected each of the institutions for the study because each has an excellent reputation in the community for nursing care. This reinforces our plan to develop a competence model that is descriptive of effective performance, rather than descriptive of the average performer or the average institution. While we are interested in identifying competences that may be more likely to be demonstrated in one setting than another because of the special mission of a particular institution, our focus is on competences that are descriptive of effective nursing performance that could be expected across a variety of roles and settings.

OBJECTIVE B: Examine the Relationship Between Various Factors That May Predict Effective Performance of Competences

Several questions asked by nursing professional groups today reflect nurses' concern with the extent to which certain conditions of setting, position, education, experience and other factors must be set for effective performance to be demonstrated. Each of the following variables is discussed below.

Setting: While the major purpose of the study is to identify abilities that cross settings, we plan to analyze the competences by each of three

settings (acute care agency, long-term care agency, and community agency) to identify those abilities that may be more likely to be setting-specific.

Position: One outcome of McBer's studies of job competence across a range of occupations (Klemp, 1977) is the finding that "the most efficient way to identify and analyze job competence is to place primary emphasis on an analysis of people in the most senior position" (Klemp, 1977, p. 4). Persons who are promoted in the organization are most likely to reflect the abilities needed for outstanding performance. Consequently, we included supervisory personnel in our sample of nurses, and all nurses we selected were at least registered nurses. Thus, we will be able to analyze the competences by position (staff nurse vs. supervisor). We recognize that such abilities as management and leadership will tend to be included in our description of nursing competences, abilities that may be less likely to be demonstrated by the staff nurse. If we are interested in applying the model results to issues related to promotion, however, it is critical that we include these abilities that may result in promotion in our model. This is especially important because some critical entry-level competences have been found to hinder career advancement (Klemp, 1977). According to Klemp, most jobs beyond entry level require work management, cooperation with others, delegation, long-range planning, and interpersonal influence. Nursing programs that focus exclusively on technical level skills may be preparing graduates for entry-level positions, but not for promotion or higher level positions. Being an individual contributor on the nursing team may be important in keeping her job, but unless leadership and management abilities are developed, the nurse may not be promoted.

Education: A major issue in nursing today concerns the educational requirements for being considered a professional, rather than a technical

nurse. While the current study does not include practical nurses (L.P.N.'s) in its sample, R.N.'s (diploma, A.D.N. and B.S.N. degrees) are included. There is a move by nursing students to select schools offering a baccalaureate in nursing (Fields, 1980). Should a B.S.N. be a requirement? If so, the nursing profession will have to demonstrate that some abilities actually do discriminate the B.S.N. program from others.

Experience: To what extent does experience determine which abilities are demonstrated? For the present study, we are comparing the performance of nurses with five or more years of experience with nurses who have less than five years' experience. While we expect all competences to be developmental in nature, an ability like "Independence" may only emerge several years after graduation from a nursing program. Entry-level personnel may succeed only if they do not display too much independence at first. An entry-level person who moves around perceived barriers to perform her job, especially if those barriers involve institutional policies, may be labeled a "trouble-maker." Once a nurse has demonstrated her abilities and gained the confidence of her colleagues and the administration, independence in job performance may be expected, and may actually result in promotion.

OBJECTIVE C: Describe Nurses' Perceptions of the Elements That Distinguish Between Outstanding and Good Performance, That Are Not Characteristic of Marginal Performers and That Are Most Critical to Consider for Selection and Education

A second purpose of this study is to ask nurses to identify those elements of nursing performance that are critical for outstanding performance, that are not characteristic of marginal performers and that are most critical to consider for selection and education. Elements describing job performance may include skills, aptitudes, motivational or personal characteristics and interests. This objective allows us to ask two questions: (1) What do

nurses say is important for outstanding performance, and (2) What is the relationship between what nurses say is important and what they actually do? A description of nurses' perceptions can serve to validate the perceptions of nurse educators who also identify the abilities they think are critical when they design nursing programs. Practicing professionals may identify elements critical for effective performance that may not actually be the ones they use. Elements thought to be most important may stem from ideas about nursing practice that have not kept up with the demands of practice, or vice versa. The basic technique (Job Element Inventory) involves asking a range of nurse professionals to generate elements. A selected group of nurses then responds to the list of elements and rates them (1) as critical for outstanding performance, (2) as not characteristic of marginal performers, and (3) as critical to selection and education. Elements that have all these characteristics are then considered to be most important from the nurses' point of view. The present study focuses on nurses' selection of elements critical for outstanding performance only.

OBJECTIVE D: Examine the Relationship Between Competences Derived from an Analysis of Nurses' Performance and an Analysis of Nurses' Perceptions of the Elements Critical for Outstanding Nursing Performance

The final research objective is designed to examine the relationship between nurses' performance as described by the generic competence model, and nurses' perceptions of those elements critical to outstanding performance. To what extent do the competences based on effective performance and the elements identified by nurses as important relate to each other? Generic competence model performance scores of nurses generated from the Behavioral Event interviews will be compared to perception scores of nurses generated from Job Element Inventory data.

METHOD

Sample

The three agencies chosen for participation were selected because of their willingness to participate in the study and their excellent reputation in both the lay and professional communities.

Each of the three agencies--acute care, long-term care and community health--are located in a large midwestern metropolitan area. The acute care agency provides all but the most specialized medical services. The long-term care agency provides services to residents requiring skilled and intermediate care services, and offers recreational, living and therapy areas. The community health agency provides home health care services to all age groups.

Because each of these institutions has an excellent reputation, we assumed that job satisfaction would be moderate to high, reducing the possibility of staff turnover, a potential problem in nursing studies having a long duration. Nurses and administrators in the acute care and community agencies did not consider staff turnover excessive. Turnover did not interfere with the study. Nurses in the long-term care agency did mention rapid staff turnover, but staff turnover did not seem to affect either the nomination procedure nor the sample of nurses interviewed there.

Initial contact with each agency was made by the Chairperson, Division of Nursing, Alverno College. Each agency administrator met with one of the two interviewers (both were Alverno College nursing faculty), who explained the purpose and methodology of the research, and the staff and other agency resources that would be required. Administrators in each agency were enthusiastic about the project and supplied helpful information and ideas for the potential utilization of the research results,

particularly in regard to staff evaluation. They also suggested how the methodology might best be implemented within the agency. They were informed that the results of the research would be provided to them. All nurses contacted later for an interview, agreed to participate.

Table 1 shows the population of nurses employed in each agency, the number of nurses who returned the nomination questionnaires, the nurses who were interviewed, and the number of critical incidents collected.

Two units from the acute care agency were dropped after nomination questionnaires were distributed at the suggestion of the agency administrator. Three nurses from the long-term care agency were not included because they worked less than two days per week.

Table 1

Breakdown of the Sample by Agency: Population of Nurses Employed, Participated, Interviewed, and Number of Critical Incidents Collected

	Acute Care Agency	Long-Term Care Agency	Community Agency
Nurses employed at the agency	155	35	76
Nurses participating	130	32	76
Nomination questionnaires returned	124	26	63
Nurses interviewed	44	9	30
Critical incidents	270	51	181

Instruments

Nomination Questionnaire

The nomination questionnaire is a two-page instrument that briefly describes the study and asks participants to list those nurses whom they consider to be "outstanding." Space is allotted for ten names and participants are instructed to list as many "outstanding" nurses as they can

think of from memory.

Behavioral Event Interview

The interview technique used in this study was devised by David McClelland of Harvard University and of McBer and Company, Boston, Massachusetts. The purpose of the technique is to elicit from respondents exactly what they did and how they felt in dealing with work situations in which they viewed themselves as effective or ineffective. Comparing what is done, thought and felt by "outstanding" and "good" nurses provides the basis from which a generic competence model can be derived. The interview consists of three component parts. First, the participant is asked to describe her job responsibilities. During the actual interview, this information is often used as a means of triggering recall of additional situations or critical incidents. Second, the participant is asked to recall situations, or critical incidents, in which she is involved and feels her participation is particularly effective or ineffective (the interviewer attempts to elicit 3 of each). The interviewer asks "what led up to the situation," "who was involved," "what did you think/feel, want to do in dealing with the situation," "what did you do," "what was the outcome, and what happened?" The interviewer continues to probe, emphasizing behaviors and facts until six situations are obtained from each participant (with the exception of twelve interviews, at least six situations actually were elicited). The third, or last component of the interview consists of asking participants to describe the characteristics possessed by nurses which are most important for successful job performance. When the participant has difficulty recalling situations she is asked to exemplify these characteristics for the purpose of extracting additional critical events.

The major responsibility of the interviewer using this technique is to draw out as much information about the participant's behavior, thoughts and feelings as possible for each situation cited. The interviewer does not "lead the witness," nor must s/he use any language in probing that the interviewee has not already used.

Behavioral Event Interview Write-up

As soon as possible after the interview, the interview content is summarized in written form. The form for the write-up (McClelland, 1978) includes a description of each incident, the components of the incident, the participant's job responsibilities, and the characteristics he or she believes necessary for outstanding job performance and other behaviors and or impressions created during the interview. Interviews were written up as soon as possible after the interview with the use of the tape, and typed in similar format for coding.

Background Questionnaire

In objective format, the questionnaire elicits information about marital status, number of dependents, year of licensure, years of nursing experience, type of educational preparation for licensure, current educational pursuits, an estimate of future educational endeavors, job satisfaction, and self-evaluation of job performance. It was used to categorize interview participants on educational background, years of nursing experience, hours of employment per week, marital status, job satisfaction and self-perception of performance.

Job Element Inventory

The Job Element Inventory is comprised of a list of 120 behaviors nurses identified as necessary for "outstanding" or "superior" job performance.

The purpose of the inventory is to ascertain the behaviors/characteristics participants think nurses must possess for outstanding nursing performance. Participants go through the list three separate times. They check those behaviors they believe (1) distinguish "outstanding" from "good" nurses who share their job title, (2) characterize "marginal" nurses who share their job title, (3) are most important in hiring or training for their job.

The format of the instrument and the questions asked are taken from a Job Element Inventory devised by McBer and Company. The behaviors listed in the inventory were compiled in a research project carried out by Lois Grau and Pauline Rutter, who asked 78 participants from a broad range of nurse professionals to list behaviors characteristic of "superior" nurses. Participants were also asked to rank a list of skills which participants felt were most often found in "superior" nurses. This list was then reviewed by 6 expert judges drawn from the Alverno nursing faculty.

Procedure

Interview Training

Both interviewers received extensive training and conducted practice interviews which were critiqued. The interviewer for the acute care and long-term care agencies participated, along with other members of the research team, in a two-day workshop conducted by George Klemp of McBer and Company. The interviewer for the community agency reviewed tapes of the workshop and other materials related to the study, conducted several practice interviews, and compiled practice write-ups. Both interviewers were women members of the Alverno College nursing faculty.

Nomination Procedure

In order to differentiate "outstanding" and "good" nurses, all nurses

in each agency (Table 1) were administered the Nomination Questionnaire. Two different distribution methods were used, due to differences in staffing patterns, nursing routines and the frequency of staff meetings. In the long-term care and community agencies, questionnaires were distributed and collected at staff meetings after a brief explanation of the study. Nurses not present were given questionnaires individually, which they returned to the interviewer in coded envelopes. At the acute care agency, the interviewer distributed questionnaires by unit, which the nurses completed individually and returned to a collection point. These differences may account for some of the variation in who was nominated. Nurses present at the meeting may have determined who was nominated to some extent. Independent nominations, in the absence of peers, may affect nominations.

The long-term care agency meeting was attended largely by supervisory personnel, who voted heavily for each other. The community agency meetings had more staff nurses than supervisory personnel in attendance--due to the ratio of supervisors to staff nurses. Nominations were made more independently in the acute care agency. Interestingly enough, nominations for outstanding nurses included mostly supervisory personnel in the long-term care agency, although the difference is not significant. In the community agency, significantly more staff nurses were nominated as outstanding. In the acute care agency, significantly more supervisory personnel were nominated than staff nurses. Presence or absence at the meeting is only one explanation for these findings (see Table 2). An alternative explanation is that more independent action is enjoyed by supervisory personnel in acute care and long-term care agencies, and by staff nurses in the community agency, who work in homes and are more likely to be viewed as independent agents. We recommend additional studies of the impact of

setting on nominations, and also suggest that nominations by clients and supervisors be included in future studies of this nature.

Table 2

Frequency of "Outstanding" and "Good" Nurses in Three Settings by Organizational Position

Peer Nomination	NURSING SETTING					
	Acute Care Agency (n=44)		Long-Term Care Agency (n=9)		Community Agency (n=30)	
	Staff	Supervisory	Staff	Supervisory	Staff	Supervisory
	n %	n %	n %	n %	n %	n %
"Good"	16 (64)	4 (21)	2 (67)	1 (17)	6 (32)	9 (82)
"Outstanding"	9 (36)	15 (79)	1 (33)	5 (83)	13 (68)	2 (18)
	$x^2 = 6.392$ df = 1 p = .011		Fisher's Exact Test = .226		$x^2 = 5.167$ df = 1 p = .023	

The first five names listed on each nomination questionnaire were scored as follows. Ranked choices were weighted; the number of points each nurse received was totaled. A panel of two nurse educators and two social scientists determined the "outstanding" and "good" nurses on the basis of the score distributions. Each unit at each agency was viewed as a distinct group within which "outstanding" and "good" nurses were selected. The rationale for this decision was based on the dissimilarity in job functions and purposes for nurses within different units. Similarly, nurses at the long-term agency were divided into two groups: staff nurses and supervisory nurses.

The panel reviewed the vote distribution for each group to differentiate "outstanding" nurses from those considered "good" practitioners. The decision as to which nurses would be considered "outstanding" was based on the number of nurses and the range and median weighted rank for each population group as well as McBer's recommendation that not more than

20 percent of any one group represent "outstanding" individuals. The interviewers did not participate directly in this process so they would not be aware of who was considered outstanding during the interview.

After "outstanding" nurses had been differentiated from "good" nurses for each group, nurses to be interviewed were randomly selected. At the acute care agency, an equal number of "outstanding" and "good" nurses on each unit were identified. From a sample of 130 nurses, a total of 45 nurses were interviewed from the acute care agency (see Table 1). One interview was not usable for coding.

From the sample of 32 nurses at the long-term care agency, five nurses from the administrative-supervisory group and four nurses from the staff group were interviewed. In the community agency, a total of 30 nurses were interviewed from a sample of 63.

Interview Procedure

All the nurses selected for an interview were asked if they were willing to participate. None refused. Interviewees were personally contacted to arrange a convenient interview time. Interviews were conducted during work hours. The greatest difficulty in interviewing was the degree of rescheduling necessitated by the nurse being called to unavoidable duties during scheduled times. Interviews averaged an hour in length, and were taped.

Prior to beginning each formal interview, the interviewer and participant informally discussed the purpose of the research, the role of the interview, methods for maintaining confidentiality and the use of the tape recorder. After the interviewer introduced herself, offered the participant coffee or tea and exchanged comments on the kind of day the participant was having, difficulties in getting off the unit or finding the interview

room, the following format was used to clarify the participant's understanding of the interview and the research project.

> "I'm curious to know what you have heard and think about the study we are doing here at the agency. Can you tell me your impressions? [At this time the investigator listened to the participant to determine the accuracy of her perceptions of the study. If appropriate, the study was explained in the following way.]
>
> "We're trying to find out what nurses actually do in their nursing practice. People who teach are familiar with what nurses think nurses ought to do but would like to know more about their actual job performance. That's why we're asking you to talk about your job; no one knows it better than you. In order to find out what you do as a nurse, I'm going to ask you to talk about some situations or experiences you have had on the job. I'm particularly interested in situations in which you have been involved in which you feel that whatever you did was very effective, or on the other hand, ineffective. I'm interested in knowing exactly what you did and how you felt during these situations. The kind of things I'd like you to talk about don't have to be dramatic events, they can be anything that has involved you while you're working here at the agency. [At this point the respondent is asked if she has any questions; if so, these are answered.]
>
> "I know that often it is difficult to think of these things on demand; I'll help you to recall things if that's necessary. I'll also be asking you to talk a little about your job responsibilities and what you think is necessary for good nursing care in your job.
>
> "In order to maintain confidentiality, your name has been converted into a code number. After the interview your name will be destroyed so that it is not possible for anyone to trace the information you have provided me to you individually. [The participant is asked if she has any concerns about confidentiality or if she understands the procedure.] You probably have noticed the tape recorder. I would like to tape the interview so that I can focus on what you're saying without having to take notes. The tape has your code number on it as do the questionnaires that I will ask you to complete after the interview. Do you object to the interview being recorded? [No participants objected to recording the interview.] Before we begin, do you have any other questions or concerns?"

Following the interview, the nurse was asked to complete the Background Questionnaire and the Job Element Inventory.

Interviews were conducted in the long-term care agency first, then the acute care agency, and more than a year later in the community agency.

RESULTS

OBJECTIVE A: Derive a Generic Competence Model for Effective Nursing Performance Across Three Settings: Acute Care Agency, Long-term Care Agency and Community Agency

The sample and peer nomination procedure sections in the Method section describe the agencies sampled and the way in which nurses in each of the groups, "outstanding" and "good" were selected. Table 3 shows the number of persons interviewed by peer nomination. Because of nomination score distributions, it was not always possible to select an equal number of persons in each nomination category. Some additional supervisory personnel were interviewed to allow a position comparison (see Table 1, p. 13).

Table 3

Number of "Good" and "Outstanding" Nurses Interviewed

Peer Nomination	n	Percent
"Good"	38	45.8
"Outstanding"	45	54.2
Total	83	100.0

Table 4 shows the breakdown of interviewees by units (specialty).

Table 4

Nurses Interviewed by Unit

Unit	Nurses Interviewed	
	n	%
Long-Term Care	8	9.6
Orthopedics	10	12.0
Medical-Surgical	10	12.0
Intensive Care	9	10.8
Nursing Administration	6	7.2
Staff Development	6	7.2
Medical	15	18.1
Obstetrics	9	10.8
Alcohol Rehabilitation	4	4.8
Surgical	6	7.2
Total	83	100.0

Qualitative Analysis of Nursing Performance

The Competence Model

The major outcome of the research effort is "A Generic Competence Model for Effective Nursing Performance: A Codebook" (attached). The purpose of this section is to describe aspects of the process by which this codebook or model was derived.

McBer and Company has created several job competence models in various occupations, and has considerable expertise in the process of deriving a model from the interviews. The Behavioral Event Interview materials include specific directions for collecting data. Some written description of the process by which competences are derived from the interviews exists.[1] Throughout the derivation process (March, 1978 to December, 1980) we continued to try out, reject, and explore a number of ways to derive competences from the data. We had some assistance from David McClelland and George Klemp of McBer and Company, who "got us started" and provided us with some critique in the early part of the process. During two years of working with the data, a total of 10 versions of the codebook were developed. The tenth codebook was used to code the interview write-ups from all three settings. The eleventh codebook (attached) is the final version that includes all competences and subcompetences that appeared in the 83 interviews coded from three settings: the acute care agency, the long-term care agency and the community agency. A brief description of this process follows.

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[1] For details, contact McBer and Company, 137 Newbury Street, Boston, MA 02116.

Definition of a Generic Competence

An important consideration in beginning our derivation of a competence model was developing a clear idea of the definition of the term "competence." While Alverno faculty had considerable experience deriving competences descriptive of the outcomes of liberal education (Alverno College Faculty, 1976) and professional degrees (Alverno College Nursing Faculty, 1979), this was the first time they attempted a derivation based on performance interviews from a group of practitioners.

The competence definition that guided the derivation is a synthesis of Alverno's and McBer's definitions, which are similar. For Alverno, a competence is a generic ability characteristic of the person (not a set of discrete skills) that transfers across situations. It is developmental, in that it can be defined in various components and pedagogical, cumulative levels. It can be taught toward and assessed. A competence is an ability that can be developed in a person. Competences are also holistic in that they are integrated, inseparable parts of the whole person. Competences are outcomes of an educational process, but they are also viewed as descriptions of the kind of personal abilities we are seeking to develop (Alverno College Faculty, 1979). In addition, Alverno faculty have described characteristics or criteria that modify or describe competent performance. For example, does the person show committed performance, does she demonstrate her performance habitually, does her performance integrate her several abilities, etc. (Alverno College Faculty, 1977)?

Alverno has defined eight competences that are the outcomes of a liberal education at Alverno: Effective Communications, Analytical Capability, Problem Solving, Valuing in a Decision Making Context, Effective Social Interaction, Effectiveness in Individual/Environment Relationships.

Responsible Involvement in the Contemporary World, and Aesthetic Responsiveness (Alverno College Faculty, 1976). The Nursing Division as a professional program develops three of these competences beyond the first four levels required of all students to two advanced levels, Problem Solving, Social Interaction and Valuing, because the Division sees these abilities as being at the heart of nursing practice (Alverno College Nursing Faculty, 1979).

McBer defines a competence as a generic knowledge, skill, trait, self-schema or motive causally related to effective and/or outstanding performance in a job (McBer and Company, 1978):

> "—It can be knowledge, a category of usable information organized around a specific content area (for example, knowledge of mathematics);
> —It can be a skill, an ability to demonstrate a set of behaviors or processes related to a performance goal (for example, logical thinking);
> —It can be a trait, a consistent way of responding to an equivalent set of stimuli (for example, initiative);
> —It can be a self-schema, a person's image of self and his or her evaluation of that image (for example, self-image as a professional); or
> —It can be a motive, a recurrent concern for a goal state or condition which drives, selects, and directs behavior of the individual (for example, the need for efficacy)." (Klemp, 1980)

> "Causally related means that there is evidence which indicates or suggests that possession of the characteristic (e.g., skill, trait, knowledge, motive, self-schema) precedes and leads to effective and/or superior performance in the job. Without a theoretical prediction relating cause to effect between a characteristic and job performance, the existence of merely associational evidence (i.e., correlational statistical studies) does not satisfy the need for a causal relationship. Ideally, the theoretical prediction linking the characteristic and performance on the job should be supported by research evidence in which assessments of the characteristic are the measure of the independent variable and performance on the job is the measure of the dependent criterion variable." (McBer and Company, 1978)

> "Generic means that the competency will manifest itself in numerous specific job-related actions or behaviors. Taken together, these instances represent the evidence of the presence of competency. Competencies do not usually have a one-to-one correspondence with

observable actions in performing a job. On the other hand, they represent the underlying characteristics that can be applied to describe the successful integration of a variety of subtasks. Competencies must have generalizability or transferability to a variety of work world requirements. For example, Critical Thinking may be determined to be a competency which is related to performance in a professional job. This competency may be evident in the number and types of problem-solving activities in which a person engages." (McBer and Company, 1978)

Deriving the Codebook

The following section briefly details the process the authors used to derive the final codebook. Table 5 details a chronology of each stage of codebook development and the major activity that resulted in each draft of the codebook from Draft I to Draft X, the final draft attached to this paper.

Steps in the Process

The following steps in the process listed below describe the recommended process for deriving a codebook from Behavioral Event Interviews:

1. Select a group of interview write-ups which all members of the reasearch team will use to derive the codebook. Select five write-ups from the most "outstanding" nurses (those receiving the highest number of nominations) and five write-ups from the "good" nurses (those not receiving nominations). Transcribe these interviews so all data, including the write-ups, are available for interpretation. The interview tapes should be available if there are questions that cannot be settled by the transcript. If the interviewer is a member of the research team, he or she may provide additional interpretations of the interview data. As far as is possible, an "outstanding" and "good" interview write-up from the same setting, position, and unit should be selected for each such comparison (see number 5 below).

Table 5

Chronology of the Development of a Generic Competence Model for Effective Nursing Performance: A Codebook

DATE	CODEBOOK DRAFT	ACTIVITY
11/77-4/78		Collect 53 interviews from Acute-Care Agency and Long-Term Care Agency. Write up 321 critical incidents.
3/78	I	Send 10 interviews to McClelland. Alverno research team, McClelland and Klemp then generate competences based on interview data, logical analysis of own experience, and expert judgment. Codebook I developed to reflect group work comparing 5 "good" and 5 "outstanding" interviews.
5/78	II	Analysis of tapes of Alverno/McBer group discussions yields clarified Codebook II.
6/78	III	Codebook II used to score 10 interviews, 5 "outstanding" and 5 "good." Behaviors in the data are incorporated to form Codebook III with examples.
6/78	IV	Problems with defining subcompetences leads to emphasis on specifying all subcompetences in the data. Codebook IV, a list of all 41 subcompetences, results.
6/78	V	Codebook IV is expanded to Codebook V to include 41 sub-competences, several sub-subcompetences, and examples from the data. Codebook V will not work for coding competences, says Klemp. New analysis of "What is a competence?" begins. Concept of "flipping" between the construct of generic competence and interview data is developed.
7/78	VI	Broad generic competences and subcompetences generated from Codebook V and data form Codebook VI. Klemp reviews.
8/78	VII	Codebook VI modified after using it to score interviews. This creates Codebook VII.
8/78 - 2/79	VIII	Codebook VII used to score all interviews from Acute-Care Agency and Long-Term Care Agency. Several modifications result from the process of establishing scorer reliability.
4/79	VIII	All interviews scored. Analysis of scores and logical analysis of the codebook and data combined leads to Codebook VIII with examples.
4/79	IX	Codebook VIII finalized to create Codebook IX. Examples are dropped to facilitate scoring.
7/79		Collect 30 interviews in Community Agency and write up 181 critical incidents in preparation for extending the codebook.
8/79		Begin coding interviews from Community Agency using Codebook IX.
12/79	X	Codebook IX revised based on coding and comparing several "outstanding" and "good" interviews, and clarifications of the process of deriving competences. This yields Codebook X. All interviews from 3 agencies recoded. Coding complete 3/80.

2. Read through each interview. Identify the context and meaning of the behavior, and the outcome. Underline all behaviors, including those that are peripheral to the situation. What did the nurse actually do? Focus on what occurred, do not focus on unreported behavior. Focus on behaviors related to outcomes. Do not focus on the language patterns of the interviewee. Do not assume negative behaviors from lack of data. Any statement by the nurse of her thoughts and feelings, or other parts of the situation write-up, that ultimately might determine how the behaviors are coded, should be enclosed in parentheses. All statements that may be an assist in coding should be placed in parentheses.

3. Analyze the underlined behaviors and the thoughts and feelings in parentheses. Write out examples of behaviors that may be related to "tentative competences" you may form while you read the interview write-ups.

4. Formulate competences. Competences must be causally related to effective outcomes in the interview write-ups. The competences must be operationalizable—they must be grounded upon specific behaviors mentioned in the interviews. Competences are inferred, and we cannot observe a competence directly. The data base from which we infer the competence is made up of observable behavior. How do we decide which behaviors are subsumed under which competence? What are the rules for inference? We ask: "What is the result of the behavior? What is the context of the situation?" A behavior must lead to a result or outcome to be coded. We have to show the relationship to outcome because we are interested in effective performance. We want to know what competences lead to certain outcomes.

We must also ask, "What are the thoughts, feelings and wants of the nurse?" The latter questions are sources of information that can assist us

to identify competences. Since we define competence as knowledge, disposition, motive, attitude, self-schema or perception, and skill, we must make inferences about the other aspects of competence in coding a particular behavior. The thoughts and feelings of the interviewee allow us to infer these other aspects, and so are an assist in scoring. Any one competence may involve all or some of these aspects. The skill of the coder in coding a behavior as a competence is the extent to which s/he can put together all aspects of doing, thinking, feeling (knowledge, motive, attitude, etc.) and <u>infer the competence from the combination</u>.

We do not really know (even though we may try to discriminate them while we read each incident) which thoughts and feelings occurred during the behavior described and which are reported in the interview as a result of talking and reflecting on the situation. Therefore, thoughts and feelings are used to assist the scorer in deciding how the behavior should be scored. They are the "support."

One key to making this inference is to look for a causal relationship between thoughts and feelings and the behavior or consequent action. We can't code just on the basis of what is thought/felt because some persons may not report this. While we may not code thoughts and feelings, we use them to validate inferences made from behavior. Thoughts and feelings may <u>sometimes</u> be codeable if they are followed by behavior. Thoughts and feelings are important to understand the behavior. They are clues to the extent to which inferable aspects of the competence are brought to bear in the situation that then determines how a behavior is coded. As we code, we may ask, "What is the relationship between knowledge and action, between motive, attitude and action, etc.?" A behavior cannot be coded in the absence of making an inference. It has to be connected to an outcome.

A behavior can be either "good" or "bad." It is the context of the situation and the outcome that assists us in determining what aspect of a competence can be inferred. (Negative categories seem to be more easily coded. Making positive discriminations is the most difficult).

5. Formulate competences which discriminate between the behaviors of the "outstanding" and "good" nurses. As a support for developing a competence model for effective performance, we are comparing the interviews of "outstanding" and "good" nurses. We are interested in identifying those competences that appear in the "outstanding" interviews that are absent in the "good" interviews. This procedure places the emphasis on identifying those abilities that are necessary for effective or outstanding performance, rather than identifying behaviors that may describe the average performer. For example, if technical skills do not appear in the competence model, it means that those minimum skills do not discriminate the "outstanding" from the "good" nurse.

6. During the process described above, derive the subcompetences. The subcompetences break open different aspects of the competence. They can be either positive or negative. At this point it is helpful to identify examples of what would be coded and what would not be coded in a particular subcompetence. This helps in writing the operational definition of the subcompetence.

7. After the codebook is derived, blind coding of another set of interviews with a version of the codebook proceeds. Several sessions may be spent "learning to code" especially if coders are not those who participated in deriving the codebook. First, interviews are coded individually. Differences and similarities in coding among the coders is discussed. Consensus scoring is recommended.

8. Each critical incident is coded for competence and subcompetence. While a number of different competences and subcompetences are coded per critical incident, a single critical incident may be coded only once for a competence or subcompetence.

9. Validate the codebook by using it to code interviews obtained from a new sample of interviews which were not used to derive the codebook. This procedure is used in that a sample of interviews is used to derive the codebook, and the remaining interviews are used to determine the extent to which the codebook discriminates between "outstanding" and "good" nurses. Our recommendation for a true validation is to collect additional samples of interviews not used to derive the codebook, and to have different coders use the codebook to score the interviews, and then compare the results.

In this study, several drafts of the codebook were derived from interviews collected from the acute-care agency and the long-term care agency, which were then coded. After the interviews from the community agency were collected, a similar derivation process was used to create a final version of the codebook that incorporated the data from these interviews. Three coders (two nurse educators and one sociologist) individually coded all interview write-ups from the three settings using a final version of the codebook. Discrepancies among the coders were resolved by consensus.

Coding Skills

The following list of coding skills describes some of the considerations in coding. These skills were derived from an analysis of minutes of the meetings of coders.

- Learn to define and to recognize a generic competence.
- Learn to recognize codeable behaviors.
- Learn to discriminate what the nurse did in the situation and what other professionals did.
- Learn to separate out the nurses' interpretation of the situation and inferences made independently from the behavioral data.
- Learn to compare "outstanding" and "good" nurses by applying systematic criteria for making a judgment of differences.
- Experiment with the data and with the concept of "competence" in addition to deriving behaviors and inferring competences from the data.
- Learn to relate behaviors to outcomes, motivation and thinking. All become codeable.
- Learn to discriminate contextual variables and to interpret behaviors and outcomes in the light of information about the situation.
- Analyze the transcript or the interview tape in difficult cases.
- Learn to separate out your own values about what is effective or ineffective nursing performance and base this judgment on the outcome of the incident instead.
- Learn to recognize a competence reliably and code it. Be able to give reasons for your judgments, to operate from rules for inference that you can identify.
- Learn to code behaviors, not just by matching it to a subcompetence. Learn to relate behavior to the competence through motivation or outcome.

The Codebook

The codebook (attached) consists of nine competences made up of 38 subcompetences. The competences are: Conceptualization, Emotional Stamina, Ego Strength, Positive Expectations, Independence, Reflective Thinking, Helping, Influencing and Coaching. Taken together, the nine competences

are described by 38 subcompetences. Each of the nine competences is made up of positive subcompetences (except Reflective Thinking, which has a single descriptor). Five of the nine competences are also described by negative subcomptences. These are: Conceptualization, Emotional Stamina, Ego Strength, Positive Expectations, and Independence. Criteria for the positive subcompetences are not used for coding negative subcompetences. Each of the latter stands alone; each is so coded because demonstration results in an ineffective, or negative outcome.

Quantitative Analysis of Nursing Performance

For the final coding of the 83 interviews, three coders (two nursing faculty and one sociologist) assigned scores to each critical incident. Each critical incident was coded only once for a given subcompetence, even though it may have appeared more than once. Each incident could be coded for more than one subcompetence, however. Positive subcompetence scores were summed per competence, as were negative subcompetences. Positive scores were analyzed separately from negative scores, since we are not assuming a continuous distribution of negative to positive scores within a competence. Table 6 shows the relative frequency of positively coded instances of the competences by setting and nomination. The number of times a competence was coded allows visual comparison of the number of times the competence appeared in the data (column A). The relative frequency (percent) of the competence per setting allows visual comparison of the percent of occurrence within the "good" interviews vs. the "outstanding" interviews and helps one to compare despite the fact that different numbers of interviews were collected per setting (column B). Finally, the relative frequency (percent) for all coded instances of the competence across settings allows visual comparison of the frequency of a competence within one setting contrasted with the others (column C).

Table 7 shows the same data for the negatively coded instances of the competences by setting and nomination.

These tables allow visual comparison of the extent to which "outstanding" nurses performed each of the competences to a greater extent than the "good" nurses. Differences between "outstanding" vs. "good" performance apparent from the interviews used to derive the codebook may or may not be supported by the data from all interviews (see Objective B). In the

Table 6

Relative Frequency of Positively Coded Instances of the Competences
by Setting and Nomination ("Good" and "Outstanding")

Competences	SETTING																	
	Acute Care Agency (n = 44)						Long-Term Care Agency (n = 9)						Community Agency (n = 30)					
	"Good"			"Outstanding"			"Good"			"Outstanding"			"Good"			"Outstanding"		
	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
Conceptualization	3	18.75	6.52	13	81.25	28.26	2	100.00	4.35	0	0	0	14	50.00	30.43	14	50.00	30.43
Emotional Stamina	5	45.45	29.41	6	54.55	35.29	1	100.00	5.88	0	0	0	1	20.00	5.88	4	80.00	23.53
Ego Strength	6	28.57	22.22	15	71.43	55.56	0	0	0	0	0	0	1	16.67	3.70	5	83.33	18.52
Positive Expectations	0	0	0	3	100.00	50.00	0	0	0	1	100.00	16.67	2	100.00	33.33	0	0	0
Independence	19	36.54	13.87	33	63.46	24.09	0	0	0	7	100.00	5.11	39	50.00	28.47	39	50.00	28.47
Reflective Thinking	1	20.00	7.14	4	80.00	28.57	1	50.00	7.14	1	50.00	7.14	5	71.43	35.71	2	28.57	14.29
Helping	68	57.14	30.36	51	42.86	22.77	13	54.17	5.80	11	45.83	4.91	37	45.68	16.52	44	54.32	19.64
Influencing	28	37.84	16.37	46	62.16	26.90	7	35.00	4.09	13	65.00	7.60	44	57.14	25.73	33	42.86	19.30
Coaching	18	47.37	14.75	20	52.63	16.39	3	27.27	2.46	8	72.73	6.56	42	57.53	34.43	31	42.47	25.41

A = Number of times a competence was coded

B = Relative frequency (percent) per setting

C = Relative frequency (percent) for all coded instances of the competence across settings

Table 7

Relative Frequency of Negatively Coded Instances of the Competences
by Setting and Nomination ("Good" and "Outstanding")

Competences	SETTING																	
	Acute Care Agency (n = 44)						Long-Term Care Agency (n = 9)						Community Agency (n = 30)					
	"Good"			"Outstanding"			"Good"			"Outstanding"			"Good"			"Outstanding"		
	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
Conceptualization	8	26.67	18.60	22	73.33	51.16	0	0	0	3	100.00	6.98	2	20.00	4.65	8	80.00	18.60
Emotional Stamina	0	0	0	0	0	0	0	0	0	0	0	0	2	66.67	66.67	1	33.33	33.33
Ego Strength	5	83.33	71.43	1	16.67	14.29	0	0	0	0	0	0	1	100.00	14.29	0	0	0
Positive Expectations	1	12.50	11.11	7	87.50	77.78	1	100.00	11.11	0	0	0	0	0	0	0	0	0
Independence	4	40.00	20.00	6	60.00	30.00	0	0	0	0	0	0	5	50.00	25.00	5	50.00	25.00

A = Number of times a competence was coded

B = Relative frequency (percent) per setting

C = Relative frequency (percent) for all coded instances of the competence across settings

acute care agency, eight of the positively coded competences (Conceptualization, Emotional Stamina, Positive Expectations, Independence, Reflective Thinking, Influencing and Coaching) and one of the negatively coded competences (Ego Strength) are in the expected direction ("outstanding" more than "good").

In the long-term care agency, four of the positively coded competences (Positive Expectations, Independence, Influencing and Coaching) and one of the negatively coded competences (Positive Expectations) are in the expected direction. In the community agency, three of the positively coded competences (Emotional Stamina, Ego Strength and Helping) and two of the negatively coded competences (Emotional Stamina and Ego Strength) are in the expected direction. Statistical analysis of these comparisons is reported under Objective B.

A cluster analysis[1] of the competences was performed in order to examine the extent to which clusters of scores in the data confirmed the qualitative derivation of the competences as being independent abilities. The first finding is that there was a wide variety of competences demonstrated by each of the nurses. Even at the 40 percent error level, there are no clusters in the data. As the codebook was developed with the intent that each competence should be an independent ability, this analysis supports the qualitative derivation of the competences as independent.

Further support for this finding of the independence of the competences is found in the intercorrelation matrix for the positively coded competences, which shows a general tendency for competences not to intercorrelate (see Table 8).

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[1]See Donald J. Heldman, Fortran Programming for the Behavioral Sciences (Chicago: Holt, Rinehart, & Winston, 1967). This program is based on an article by J. H. Ward, "Hierarchical Grouping to Optimize an Objective Function," American Statistical Association Journal, 1963, 58, 236-244. Additional subroutines developed by Larry W. Claflien and Fred Ostapik, University of Wisconsin-Milwaukee.

Table 8

Intercorrelation Matrix for Nursing Competences

Competences	Conceptualization (+)	Conceptualization (-)	Emotional Stamina (+)	Emotional Stamina (-)	Ego Strength (+)	Ego Strength (-)	Positive Expectations (+)	Positive Expectations (-)	Independence (+)	Independence (-)	Reflective Thinking	Helping	Influencing	Coaching
Conceptualization (+)														
Conceptualization (-)	-.08 NS													
Emotional Stamina (+)	.05 NS	-.13 NS												
Emotional Stamina (-)	.03 NS	-.11 NS	-.08 NS											
Ego Strength (+)	.01 NS	-.09 NS	.02 NS	.00 NS										
Ego Strength (-)	.03 NS	-.11 NS	-.04 NS	-.06 NS	.00 NS									
Positive Expectations (+)	.14 NS	-.09 NS	.07 NS	.19 s=.04	.00 NS	-.08 NS								
Positive Expectations (-)	-.16 NS	.17 NS	.08 NS	-.05 NS	-.14 NS	.03 NS	.04 NS							
Independence (+)	.35 s=.001	-.02 NS	.05 NS	-.24 s=.01	.11 NS	-.24 s=.01	-.02 NS	-.14 NS						
Independence (-)	-.11 NS	-.01 NS	-.00 NS	.18 s=.05	-.10 NS	.22 s=.02	.06 NS	-.01 NS	-.22 s=.03					
Reflective Thinking	.19 s=.05	-.02 NS	.08 NS	.26 s=.009	.22 s=.03	-.14 NS	.12 NS	-.13 NS	-.01 NS	.04 NS				
Helping	-.11 NS	-.04 NS	.11 NS	-.16 NS	-.34 s=.001	-.19 s=.04	-.10 NS	-.08 NS	-.11 NS	.00 NS	-.03 NS			
Influencing	.03 NS	-.15 NS	-.13 NS	-.04 NS	.03 NS	-.03 NS	-.11 NS	-.18 s=.05	.03 NS	-.13 NS	.02 NS	-.17 NS		
Coaching	.26 s=.01	-.23 s=.02	-.17 NS	.48 s=.001	-.10 NS	-.22 s=.02	.31 s=.002	-.09 NS	.28 s=.005	-.06 NS	.06 NS	-.07 NS	-.02 NS	

One would expect to find a lack of clustering among the subcompetences since the competences are independent. The coding system was designed so that a nurse could be considered competent by demonstrating only one subcompetence.

A cluster analysis of the subcompetences was performed in order to examine the extent to which clusters of scores in the data confirmed the qualitative derivation of the subcompetences that evolved from the interview analysis. A 20 percent error level was chosen to identify clusters among subcompetences.

One overriding cluster emerged. The following relationships were identified. Two competences are represented in the cluster analysis by all their subcompetences, both positive and negative. These competences are: Ego Strength (six subcompetences: 2 positive and 4 negative) and Positive Expectations (five subcompetences: 3 positive and 2 negative). Ego Strength and Positive Expectations cluster together as well. In addition, two positive subcompetences cluster within Conceptualization (subcompetences B and C). Two subcompetences cluster within Influencing (subcompetences A and D). Coaching (subcompetence D), Helping (subcompetence B) and one negative subcompetence within Emotional Stamina (subcompetence B) also comprise this overriding cluster. While there were other clusters, they were all beyond the 20 percent error level.

This cluster analysis of the subcompetences supports their independence, just as the first analysis supported the independence of the competences. While two of the competences emerge fully in that their subcompetences cluster (all of their subcompetences are represented), these are also competences which are infrequently coded. This clustering may be caused by a small subset of nurses who are concentrating on demonstrating the subcompetences in these two competences and little else. A

maximum of 17 instances make up the Ego Strength and Positive Expectations cluster. The combination of Ego Strength and Positive Expectations that this small group of nurses demonstrates may derive from the fact that high-risk and stressful situations are highly salient to them. Since most nursing programs identify positive expectations as critical to effective nursing care, these nurses may demonstrate this competence in connection with situations calling for Ego Strength. Such stressful situations may also be conducive to both positive and negative demonstrations of both Ego Strength and Positive Expectations.

A cluster analysis of subjects was also performed in order to examine the extent to which individuals grouped together according to the settings studied. Again, we are interested in identifying generic competences that cross settings. The question is: Do individuals cluster together in their performance regardless of setting? Is a nurse from the community agency similar in her performance to a nurse in the acute care agency or the long-term care agency? Fourteen clusters emerged; a 20 percent error level was chosen.

We have a clustering not only of staff nurses, but of staff nurses within the acute care agency. Supervisory nurses within the acute care agency also cluster. Apparently, when there is clustering it occurs within agency and for one one type of nurse, either staff or supervisory. Staff nurses seem to cluster more than supervisory nurses. Eight out of 14 clusters were clusterings of staff nurses; 3 clusters out of 14 were clusters of supervisory nurses. This may be explained by our general observation that supervisors have more opportunity for autonomy in the acute care agency, and staff nurses have more opportunity for autonomy in their role in the community agency providing health care in homes away from the agency.

In addition, there is a clustering of community agency nurses which consists of a mix of staff and supervisory nurses. The less structured agency--the community agency, may break down role differentiations between staff and supervisor. The fact that staff nurses and supervisory nurses cluster separately within the acute care agency supports our observation that the acute care agency may be more structured in terms of roles and tasks. A community agency may provide more autonomy in roles and tasks.

There were similarities in clustering between nurses in the acute care agency and between nurses in the long-term care agency, and also between nurses in the acute care agency and the community agency. No similarities in clustering were found between nurses in the long-term care agency and the community agency. The latter finding may be due to the small number of nurses interviewed in the long-term care agency. Long-term care agency nurses do not cluster consistently either.

Further, it is interesting to note the frequency of the competences found in the data. A review of Table 6, and the relative frequency of positively coded competences shows us that the competence coded with the greatest frequency was Helping. Several other competences showed high frequency in the data: Conceptualization, Influencing, Independence, and Coaching. There were 224 instances of Helping coded; 171 instances of Influencing; 137 instances of Independence; 122 instances of Coaching; and 46 instances of Conceptualization. It is also interesting that the negatively coded Conceptualization competence was coded 43 times.

Objective B. Examine the Relationship Between Various Factors That May Predict Effective Performance of Competences

The four variables of major interest in the present study are setting, position, education and experience. Descriptive data were also compiled to enable a more complete description of the nurses interviewed on the following factors: hours worked per week, marital status, job satisfaction and self-perception.

Since the cluster analysis of competences indicated no clusters, and a correlation matrix showed few significant inter-correlations (Table 8), we conclude that the competences themselves are somewhat independent. Consequently, each competence is treated separately in the following analyses on setting, position, education and experience. Further, data from the positively coded subcompetences that formed the base for a score per competence were analyzed separately from data for negatively coded subcompetences.

The small sample sizes precluded a multivariate analysis comparing all four factors by nomination category ("good" vs. "outstanding"). A review of the significant comparisons from a set of "t" tests suggested that the following ANOVAs be used to further our understanding of how these variables impact performance of each competence: Setting by Nomination; Position by Nomination; Education by Nomination; and Experience by Nomination. While the large number of ANOVA's increase the likelihood of obtaining significant F tests by chance alone, we considered this procedure appropriate for the hypothesis-generating nature of the current study. The Setting by Nomination ANOVA provides a test of the extent to which nursing performance discriminates between "outstanding" and "good" nurses as the codebook intends. The remaining ANOVAs were performed in an effort to tease out the effects of other factors that might explain the results and suggest considerations for future research.

Nomination data are, of course, nominal ("outstanding"/"good"). Three settings were studied (acute care agency/long-term care agency/ community agency). Table 9 shows the number of nurses interviewed by position that provides the basis for the Staff/Supervisory categorization.

Table 9

Nurses Interviewed by Position

Position	Nurses Interviewed	
	n	%
Staff		
Staff nurse	47	56.6
Supervisory		
Supervisor	16	19.3
Administrator	6	7.2
Patient Care Coordinator	10	12.0
Inservice Education Teacher	2	2.4
Clinical Specialist	2	2.4
Total	83	100.0

Table 10 indicates the distribution of categories of education. Nurses in the Associate Degree and Diploma categories are labeled "Less than B.S.N." Nurses in the remaining categories of educational background are labeled "B.S.N. or above."

Table 10

Nurses Interviewed by Educational Background

Educational Background	Nurses Interviewed	
	n	%
Associate Degree	8	9.6
Diploma	30	36.1
Baccalaureate Degree	35	42.2
Masters Degree	5	6.0
Public Health Certificate	2	2.4
No Response	3	3.6
Total	83	10.0

Table 11 shows the distribution of categories under years of experience that formed the basis for the categorization "Less than or = 4 Years" and "More than 4 Years."

Table 11

Nurses Interviewed by Years of Nursing Experience

Years of Experience	Nurses Interviewed	
	n	%
Not more than one year	3	3.6
1-4 years	26	31.3
5-9 years	19	22.9
10-14 years	9	10.8
15-20 years	12	14.5
21-24 years	4	4.8
25-29 years	3	3.6
30-34 years	2	2.4
35 or more years	3	3.6
No response	2	2.4
Total	83	100.0

Tables 12, 13, 14 and 15 show the patterns of significant main effects and interactions derived from a series of ANOVAs[1] comparing each of the four variables by Nomination per Competence.

The level of significance for including an F in Tables 12, 13, 14 and 15 was set at $p < .10$ because of the exploratory nature of the question.

Results are included in a table of main effects if the level of significance is .05 or below (Table 16).

[1]Tables of means, standard deviations and the ANOVAs are available from the authors.

Table 12

Significant Main Effects and Interaction Effects from Two-Way ANOVAs Comparing Each Positively and Negatively Coded Competence: Setting by Nomination

Competences	Main Effects		Interaction Effects
	Setting	Nomination	Setting X Nomination
Conceptualization (+)	F = 4.56 s = .01	NS	NS
(-)	NS	NS	NS
Emotional Stamina (+)	NS	NS	NS
(-)	F = 2.69 s = .08	NS	NS
Ego Strength (+)	F = 3.06 s = .05	F = 3.62 s = .06	NS
(-)	NS	F = 5.14 s = .03	NS
Positive Expectations (+)	NS	NS	F = 2.49 s = .09
(-)	NS	NS	F = 2.44 s = .09
Independence (+)	F = 15.52 s = .000	NS	NS
(-)	NS	NS	NS
Reflective Thinking	NS	NS	NS
Helping	NS	F = 2.97 s = .09	F = 2.58 s = .08
Influencing	NS	NS	NS
Coaching	F = 7.14 s = .001	NS	NS

Table 13

Significant Main Effects and Interaction Effects from Two-Way ANOVAs Comparing Each Positively and Negatively Coded Competence: Position by Nomination

Competences	Main Effects		Interaction Effects
	Position	Nomination	Position X Nomination
Conceptualization (+)	NS	NS	NS
(-)	$F = 3.51$ $s = .06$	$F = 3.23$ $s = .08$	NS
Emotional Stamina (+)	$F = 6.54$ $s = .01$	NS	NS
(-)	NS	NS	NS
Ego Strength (+)	$F = 7.24$ $s = .008$	NS	NS
(-)	NS	$F = 4.75$ $s = .03$	NS
Positive Expectations (+)	NS	NS	NS
(-)	NS	NS	NS
Independence (+)	NS	NS	$F = 2.93$ $s = .09$
(-)	NS	NS	$F = 3.46$ $s = .07$
Reflective Thinking	NS	NS	NS
Helping	$F = 6.07$ $s = .02$	NS	NS
Influencing	$F = 13.86$ $s = .000$	NS	NS
Coaching	NS	NS	NS

Table 14

Significant Main Effects and Interaction Effects from Two-Way ANOVAs Comparing Each Positively and Negatively Coded Competence: Education by Nomination

Competences	Main Effects		Interaction Effects
	Education	Nomination	Education X Nomination
Conceptualization (+)	NS	NS	NS
(-)	$F = 3.96$ $s = .05$	NS	NS
Emotional Stamina (+)	NS	NS	NS
(-)	$F = 2.80$ $s = .10$	NS	NS
Ego Strength (+)	$F = 7.54$ $s = .007$	$F = 4.19$ $s = .04$	NS
(-)	NS	$F = 4.67$ $s = .03$	NS
Positive Expectations (+)	NS	NS	NS
(-)	NS	NS	NS
Independence (+)	$F = 8.34$ $s = .005$	NS	NS
(-)	NS	NS	NS
Reflective Thinking	NS	NS	NS
Helping	NS	NS	NS
Influencing	NS	NS	$F = 5.67$ $s = .02$
Coaching	$F = 7.67$ $s = .007$	NS	NS

Table 15

Significant Main Effects and Interaction Effects from Two-Way ANOVAs Comparing Each Positively and Negatively Coded Competence: Experience by Nomination

Competences	Main Effects		Interaction Effects
	Experience	Nomination	Experience X Nomination
Conceptualization (+)	$F = 4.06$, $s = .05$	NS	NS
(-)	NS	NS	NS
Emotional Stamina (+)	$F = 4.22$, $s = .04$	NS	NS
(-)	NS	NS	NS
Ego Strength (+)	NS	$F = 3.74$, $s = .06$	NS
(-)	NS	$F = 5.24$, $s = .02$	$F = 4.47$, $s = .04$
Positive Expectations (+)	NS	NS	NS
(-)	$F = 3.18$, $s = .08$	NS	NS
Independence (+)	NS	NS	$F = 5.31$, $s = .02$
(-)	NS	NS	NS
Reflective Thinking	NS	NS	NS
Helping	$F = 3.33$, $s = .07$	$F = 2.92$, $s = .09$	NS
Influencing	$F = 10.68$, $s = .002$	NS	NS
Coaching	NS	NS	$F = 3.60$, $s = .06$

Significant Main Effects and Directional Differences
of the Means by Competence

Competences	Main Effects and Direction of the Differences[a]				
	Effect D[1]	Effect D[2]	Effect D[3]	Effect D[4]	Effect D[5]
Conceptualization (+)		Setting $\frac{C}{A}$			Experience $\frac{M}{L}$
(-)				Education $\frac{L}{M}$	
Emotional Stamina (+)			Position $\frac{St}{Su}$		Experience $\frac{L}{M}$
(-)	Nomination $\frac{O}{G}$				
Ego Strength (+)	Nomination $\frac{O}{G}$	Setting $\frac{A}{L/C}$	Position $\frac{Su}{St}$	Education $\frac{M}{L}$	
(-)	Nomination $\frac{O}{G}$				I[b]
Positive Expectations (+)					
(-)					
Independence (+)		Setting $\frac{C}{A}$		Education $\frac{M}{L}$	I
(-)					
Reflective Thinking					
Helping			Position $\frac{St}{Su}$		
Influencing			Position $\frac{Su}{St}$	I	Experience $\frac{M}{L}$
Coaching		Setting $\frac{C}{A}$		Education $\frac{M}{L}$	

[a]Indicated by the larger mean over the smaller mean

[b]I = Interaction is significant (e.g. Experience by Nomination)

[1]Nomination: $\frac{O}{G}$ = Outstanding more than Good nurses

[2]Setting: $\frac{C}{A/L}$ = Community nurses more than Acute care or Long-term care nurses

[3]Position: $\frac{Su}{St}$ = Supervisory more than Staff nurses

[4]Education: $\frac{M}{L}$ = Nurses with more Education demonstrate more than those with less Education

[5]Experience: $\frac{M}{L}$ = More Experienced nurses demonstrate more than less Experienced nurses

Under Objective A, Tables 6 and 7 allow a comparison of the direction of the differences that discriminate "outstanding" and "good" by Setting. The ANOVAs did not yield significant differences in most of these cases. A review of Tables 12, 13, 14 and 15 indicates that when Nomination is compared with four variables, Setting, Position, Education and Experience, Nomination yields a significant main effect for Ego Strength positively coded, Ego Strength negatively coded and Emotional Stamina negatively coded.

Three interactions are significant: Education by Nomination for Influencing; and Experience by Nomination for Ego Strength (-) and Independence (+).

A review of Table 16 shows the significant main effects of Setting, Position, Education and Experience for each positively and negatively coded competence. Clearly, these variables impact nursing performance. Studies that attempt to describe the competent nurse must take these factors into account.

Nomination is significant for Emotional Stamina (-), Ego Strength (+) and Ego Strength (-). For each, "outstanding" nurses demonstrate each competence more than "good" nurses. Ego Strength (+) is found more in the acute care agency; supervisory nurses show more Ego Strength as do nurses with more education.

The community agency nurses do more Conceptualizing, so do more experienced nurses. More educated nurses do negative Conceptualizing less. Persons with less experience and staff nurses demonstrate more Emotional Stamina (+). Persons with more education and persons in a community agency show more Independence. Supervisors and those with more experience do more Influencing; staff nurses do more Helping. Again community agency nurses and nurses with more education do more Coaching.

It is interesting that there is a concentration of nurses with B.S.N. or higher degrees in the community agency (see Table 17). This is due to the emphasis in the agency on the degree as a selection criterion for hiring. Years of experience is also a criterion.

Table 17

Educational Backgrounds of Nurses in Three Settings

Education	NURSING SETTING					
	Acute Care Agency		Long-Term Care Agency		Community Agency	
	n	%	n	%	n	%
Less than B.S.N.	29	(67)	6	(86)	3	(10)
B.S.N. or above	14	(33)	1	(14)	27	(90)

$x^2 = 27.874$
$df = 2$
$p < .0001$

This also shows up in comparisons of experience levels in the three agencies (see Table 18), although the relationship is not significant since nurses in the acute care agency, while not as likely to have the B.S.N. degree, do tend to have four or more years of experience in nursing.

Table 18

Length of Experience by Setting

Experience	NURSING SETTING					
	Acute Care Agency		Long-Term Care Agency		Community Agency	
	n	%	n	%	n	%
Less than or = 4 years	15	(35)	2	(25)	12	(40)
More than 4 years	28	(65)	6	(75)	18	(60)

$x^2 = .652$
$df = 2$
$p = .722$

Table 19, a comparison of Education by Position, shows no significant relationship. Apparently, a B.S.N. or higher is not significantly associated with promotion to supervisor, although the number of persons in each category is in the expected direction.

Table 19

Education of Nurses by Position

EDUCATION	POSITION: Staff	POSITION: Supervisory	
Less than BSN	24 52.17	14 41.18	38
BSN or higher	22 47.83	20 58.82	42
	46	34	80

$X^2 = .55843$
$\underline{df} = 1$
Not Significant

Tables 20, 21, 22 and 23 report descriptive data on the following factors: hours worked per week, marital status, job satisfaction and self-perception. Data for each factor was obtained from the Background Questionnaire. Table 20 indicates the number of hours worked per week, and shows that most of the nurses were employed full time. No nurses worked less than two days per week. This is important, since nomination is based partly on how well a nurse knows her colleagues.

Table 21 indicates that the largest percentage of nurses in the sample interviewed were married.

Table 20

Nurses Interviewed by Hours Worked Per Week

Hours Worked Per Week	Nurses Interviewed	
	n	%
15-19	2	2.4
20-24	6	7.2
30-34	1	1.2
35-39	3	3.6
40-44	62	74.7
45 or more	7	8.4
No response	2	2.4
	83	100.0

Table 21

Marital Status of Nurses Interviewed

Marital Status	Nurses Interviewed	
	n	%
Single	24	28.9
Married	50	60.2
Divorced, Separated	7	8.4
No Response	2	2.4
Total	83	100.0

Tables 22 and 23 show the precent responding to four alternatives to the questions "How satisfied are you with nursing? and "How good a nurse do you think you are?" Data indicate that in both instances, nurses report themselves to be satisfied with their job, and report that they are good nurses.

We report these data, even though the validity of such questions can be challenged. Will nurses actually indicate such feelings on an

Table 22

Job Satisfaction of Nurses Interviewed
(How Satisfied Are You With Nursing?)

Job Satisfaction	Nurses Interviewed	
	n	%
Very satisifed	37	44.6
Somewhat satisfied	37	44.6
Somewhat dissatisfied	6	7.2
Very dissatisfied	1	1.2
No response	2	2.4
Total	83	100.0

Table 23

Self-Perception of Nurses Interviewed
("How Good a Nurse Do You Think You Are?")

Self-Perception	Nurses Interviewed	
	n	%
Very good	33	39.8
Somewhat good	48	57.8
Somewhat poor	0	0.0
Very poor	0	0.0
No Response	2	2.4
Total	83	100.0

objective, single item? We are not reporting data on actual job satisfaction and self-perception; we are reporting what these nurses will tell a researcher. We deliberately sought selection of agencies for the study who were not characterized by obvious disrupting personnel issues, leading to major dissatisfactions,--a not uncommon event in some institutions where nurses are actively seeking salary increases and better working conditions. We were also hoping to include nurses in the study who were effective--and selected agencies with a good reputation. Responses to the questions tapping job satisfaction and nurses' perceptions of themselves as effective supports our choices.

OBJECTIVE C: Describe Nurses' Perceptions of the Elements that Distinguish between Outstanding and Good Performance, and That Are Most Critical to Consider for Selection and Education

Our purpose in the present study was to compare nurses' perceptions of the importance of the elements in the Job Element Inventory with their performance coded by the generic competence model. A statistical analysis is currently being generated in a separate study, to examine the clustering of the elements. For the current study, we are interesting in comparing nurses' perceptions to performance--performance based in part on the perceptions of the nursing research team. For this reason, members of the coding team used the completed codebook as a criterion for categorizing elements of the Inventory into sets of items corresponding to the nine competences in the generic competence model (See Table 24). Two questions from the Job Element Inventory formed the basis for the resulting scores: "Do these elements distinguish between the outstanding and good performer in your job?" and "Which elements are most critical to consider for selection or educating for your job?"

Table 24

Elements from the Job Element Inventory
Grouped to Conform to the
Codebook Competences

CONCEPTUALIZATION
- Has insight into situations
- Predicts the outcomes of his/her behavior
- Predicts the outcome of the behaviors of others
- Accurately assesses the abilities of others
- Shows resourcefulness
- Accurately assesses client/patient needs
- Accurately applies theoretical knowledge
- Evaluates outcomes against a standard of performance
- Has insight into people
- Accurately identifies problems
- Uses analytical skills in problem solving
- Knows and understands the constraints of the environment
- Evaluates the behavior of others
- Identifies and prioritizes alternative actions
- Uses problem solving skills

EMOTIONAL STAMINA
- Maintains self-control
- Is emotionally mature

ECO STRENGTH
- Accepts failure
- Stands up for and acts upon his/her rights
- Is able to accept criticism

POSITIVE EXPECTATIONS
- Is fair in dealing with others
- Holds positive expectations of others

INDEPENDENCE
- Stands up for the rights of others
- Follows problems to their conclusions
- Acts as a causal agent in situations
- Accepts responsibility
- Takes initiative in situations
- Refers people to community resources
- Seeks information when necessary
- Makes resources available to others

REFLECTIVE THINKING
- Evaluates the affect of his/her behavior
- Reconsiders his/her ideas and actions when necessary

(continued)

HELPING

- Listens to others
- Helps co-workers accomplish tasks
- Counsels co-workers
- Communicates compassion to clients/patients
- Is sensitive to the needs of others
- Counsels clients/patients
- Communicates empathy to clients/patients
- Communicates empathy to fellow workers
- Cares about people
- Counsels the families of clients/patients
- Shows compassion to fellow workers

INFLUENCING

- Resolves conflicts
- Serves as an intermediary between opposing parties
- Serves as a role model for others
- Sets an example for the purpose of transferring expertise
- Negotiates mutually acceptable solutions
- Is able to persuade others
- Influences others by personal example
- Resolves conflict

COACHING

- Teaches staff
- Gives feedback to staff
- Directs others in tasks
- Rewards others
- Gives others responsibility for tasks
- Gives feedback to the client/patient family
- Motivates/encourages others
- Uses analytical skills in problem solving
- Delegates responsibility to others
- Teaches the families of clients/patients
- Recognizes others for their accomplishments
- Provides information necessary to get the job done

OBJECTIVE D: Examine the Relationship Between Competences Derived From an Analysis of Nurses' Performance and an Analysis of Nurses' Perceptions of the Elements Critical for Outstanding Nursing Performance, Selection and Education

The final research objective is designed to examine the relationship between nurses' performance as described by the generic competence model, and nurses' perceptions of those elements measured by the Job Element Inventory. Based on Table 24, each nurse was assigned a score for each (perceived) competence, based on summing her responses to two of the three questions from the Job Element Inventory, for each item in the nine categories. The scores for the total sample were then collapsed into three subsets "Checked Few", "Checked Some" and "Checked Many". These scores were compared to the nurses' scores (presence or absence of a positively coded competence or a negatively coded competence only) derived from coded behaviors using the codebook.

In this way, the relationship between what nurses say is desirable performance is compared to their actual performance as determined by coded behaviors using the competence model. The resulting contingency tables[1] showed that in no case was there a significant association (Chi-square) between competences derived from an analysis of nurses' performance and nurses' perceptions of the elements critical for outstanding nursing performance, selection and education.

This finding supports the need for the current study. Asking nurses what is critical may give nurse educators one type of information. Perceptions are clearly not sufficient as a single source. The Inventory statistical analysis in progress may shed light on the "competences" that emerge independent from the categorization of the elements by the research team that derived the generic competence model.

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[1] Contingency tables are available from the authors.

CONCLUSIONS

The major purpose of this study was to create a generic competence model for effective nursing performance. The major outcome is a codebook describing nine generic abilities. The competences were derived after an intensive qualitative analysis of interviews in which nurses discussed what they actually did in the context of situations that led to effective and ineffective outcomes.

Given the generation of the codebook as a description of effective, generic competences, which of the competences do nurses report that they do most? When we ask nurses what they actually do, they report a great deal of Helping, which fits with the more traditional role of the nurse. But more important, they report a great deal of Independence, Influencing and Coaching, and they report that they Conceptualize. These competences describe today's nurse as an active, influential professional who demonstrates independence and analytical thinking in her role. While more of these active competences were demonstrated in the community health agency than in the acute care agency, the acute care agency and the long-term care agency seem to have a more structured environment with regard to roles and tasks. Nurses in a more structured situation may not demonstrate some of the abilities, which they may indeed possess, because of the demands of the setting. The competences identified in the present study are generic in that they give us a picture of the nurse's performance across individuals (nominated by peers within agency), specialties, tasks, positions, and roles. We must also keep in mind that these competences are demonstrated in interaction with the constraints, demands and

opportunities the environment affords. An important question for future studies is "How does the nurse adapt her abilities to the setting in which she is working?"

The more experienced or more educated nurse is likely to demonstrate more Conceptualizing, less negative Conceptualizing, more Ego Strength, and more Independence, Influencing and Coaching. These abilities taken together seem to have an underlying component--an active, thinking, influential style where the nurse also strives to assist the client to take on more responsibility for his or her own care. Some of these abilities appear more in the community agency, an agency we believe is likely to be more supportive of these competences, where more educated nurses are employed, and where nurses are likely to have more role autonomy.

Experience alone will not guarantee the most effective nursing performance. True, experienced nurses demonstrated more Conceptualizing. They also demonstrate more Influencing but the fact that these nurses are more likely to be supervisory may afford them more opportunity to do so. This is supported by the finding that staff nurses demonstrate more Helping; their role certainly provides more opportunity for direct client care.

But the more educated nurses, those with a BSN or more, showed less negative Conceptualizing, higher Ego Strength, greater Independence and more Coaching. There may be no substitute for experience. Clearly, there is no substitute for a bachelor's degree. Our study suggests that the more experienced and educated nurses, when given the opportunity, are likely to engage in an active, thinking role.

Quantitative analyses conducted in support of the major assumptions underlying the codebook provided support for the competences as independent, and as measuring a variety of the abilities that effective nurses demonstrate. Competences are broken open into components or subcompetences which are for the most part also independent. Two exceptions are Ego Strength and Positive Expectations, competences which were coded infrequently. There is a tendency for a small subset of nurses in the sample to demonstrate both positive and negative aspects of these two competences together. Perhaps institutional constraints do not allow the nurse to always demonstrate the positive aspects of her Ego Strength and Positive Expectations abilities. Ego Strength discriminated effective performance in that "outstanding" nurses, nominated by their peers, demonstrated this ability to a greater extent. In the main, however, the subcompetences are independent. The next step in validating the model is to select or devise instruments that measure these competences and then examine the extent to which effective or outstanding performance is discriminated in a variety of settings. Our suggestion would be to combine selections of "outstanding nurses" from client, supervisor, peer and nurse educator judgments.

To what extent does the quantitative analysis of performance support the competences as descriptive of effective performance? First, nurses seemed to confirm our perception of them as generally satisfied and effective--a criterion for agency selection for participation in this study. In the main (more so in the acute care agency), the competences discriminated "outstanding" from "good" nurses in the expected direction.

Statistical comparison failed to confirm most of these differences as significant. But the nomination of nurses as "good" and "outstanding" functioned differently across the three agencies. Supervisors tended to be rated "outstanding" in the acute care and long-term care agencies; staff tended to be rated "outstanding" in the community agency. This may be a product of the differential nomination procedure necessitated by type of agency, but it may also indicate that the setting has a powerful impact on which nurses self-select, or are selected by, the agency.

We hypothesize that the model may discriminate effective performance in the acute care and long-term care agencies to a greater extent than the community agency. It appears that the community agency may not discriminate as much between "outstanding" and "good" nurses because more of the competences may be demonstrated by all nurses in the community agency. Relatively speaking, nurses in the community agency, who are likely to have more education, seem to demonstrate the competences more.

We found the methodology time-consuming but enormously satisfying. The qualitative analysis of the interviews taught us a great deal about nursing performance in the voices of the nurses themselves. The method did take time to learn and to put to effective use. Alverno nursing faculty already experienced in competence derivation found the method worth the effort since the model will be used to validate the curriculum. Indepth studies of this nature are essential if implications for education, selection and promotion of nurses are based on their results. We need a wide variety of competence identification and definition studies based on the behavior of effective nurses to shore up the expert judgment of nursing

faculty. This belief was supported by the finding in this study that nurses' perceptions of the elements critical to outstanding performance, selection and education did not correlate with their behavior as coded from the interviews with the competence model. Several sources of judgment are important but are no substitute for studies of nursing performance.

For us, the next step is to compare the competence model to the competences that currently form the basis for nursing education at Alverno. Examples and criteria from the interviews will improve instruction and assessment. Analysis of the extent to which the model discriminates effective performance based on an independent measure of expert judgment other than nomination, and a statistical analysis of nurses' perceptions are in progress.

Nursing associations are hoping to describe criteria and competences that distinguish the professional nurse. This model can be a contribution to that effort. Operational definitions of the subcompetences can also assist in selecting criteria for state board exams currently under revision that attempt measurement of performance in addition to knowledge. How can a competence model of this nature be used by the agencies involved as selection and promotion criteria? Would agency nurses who reviewed this codebook confirm the criteria as important for this use?

In sum, nurse educators and nurse practitioners were able to cooperate and work together in a common effort to develop a competence model that can improve nursing education. Perhaps that is the most important outcome of the study.

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ALVERNO COLLEGE
OFFICE OF RESEARCH & EVALUATION/DIVISION OF NURSING

A GENERIC COMPETENCE MODEL FOR EFFECTIVE NURSING PERFORMANCE A CODEBOOK

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I. CONCEPTUALIZES

Conceptualizes is coded positively when the nurse forms a concept by recognizing the relationship between two different pieces of information in the following ways:

A. The nurse explains a rationale for her thoughts or action by identifying the two pieces of information and the concept used to explain the relationship. It is also coded positively if the nurse indicates her understanding of the relationship even though she does not explicitly name the concept formed.

B. The nurse uses a concept to recognize that, while all the individual data are within normal limits, the pattern of data indicates that something is wrong. (It is not coded if the pattern is so routine that anyone would be expected to have noticed that problem.)

C. The nurse brings to bear non-routine resources to a problem or applies routine resources in a creative manner.

Conceptualizes is coded negatively when:

D. The nurse presents two pieces of information from which a concept could be expected to be drawn but fails to draw the relationship or organizing principle. It is also coded negatively if the nurse presents the theoretical knowledge which could be applied but does not apply it. (Using this code overrides any Helping or Coaching behavior resulting from the negative conceptualization, even though these would otherwise be coded.)*

E. The nurse demonstrates a preoccupation with a specific task to the exclusion of the higher organizing principle(s). (Using this code overrides any Helping or Coaching behavior resulting from the negative conceptualization, even though these would otherwise be coded.)*

*Criteria stated for positive categories are <u>not</u> used for negative coding.

II. EMOTIONAL STAMINA

Emotional Stamina is coded positively when the nurse performs her responsibilities despite strong emotional reaction to a situation. The nurse must mention that she had a strong emotional reaction and there must be evidence that this did not interfere with her performance; i.e., she must show evidence of overcoming a strong emotional response. Emotional Stamina is coded positively when:

A. The nurse simply does not allow emotions to interfere with performance by controlling anger, overcoming fear, or responding calmly when attacked.

Emotional Stamina is coded negatively when:

B. The nurse presents evidence that an emotional response interfered with her performance.*

C. The nurse gives evidence that bottling up a strong emotional response interfered with her performance.*

*Criteria stated for positive categories are not used for negative coding.

III. EGO STRENGTH

Ego Strength is coded positively when the nurse shows evidence of being able to withstand confrontation, disagreement, or disapproval to persevere in her judgment or is able to use assertiveness despite disagreement or disapproval. (An element of risk must be involved for the nurse in order for Ego Strength to be coded; confrontation or disapproval alone is not sufficient for coding.) Ego Strength is coded positively when:

A. The nurse fulfills her responsibility at the risk of incurring the disapproval of another (supervisor, patient, peer).

B. The nurse admits a weakness, mistake, or lack of knowledge while recognizing the importance of remedying it.

Ego Strength is coded negatively when the nurse shows evidence of abandoning her responsibility when meeting disagreement or disapproval. Ego Strength is coded negatively when:

C. The nurse abandons a responsibility when she perceives a barrier, taking no steps to test the reality of the barrier.*

D. The nurse changes her behavior in the face of disapproval by another, or acts to avoid disapproval rather than to fulfill responsibilities.*

E. The nurse acts out of a need for the approval of others.*

F. The nurse feels ineffective and helpless, unable to act as a result.*

*Criteria stated for positive categories are not used for negative coding.

IV. POSITIVE EXPECTATIONS

Positive Expectations is coded positively when the nurse expresses the belief that another person, or people in general, have basic worth or ability to perform. Positive Expectations is coded positively when:

A. The nurse expresses the belief that people are worth teaching.

B. The nurse sees others as generally competent.

C. The nurse reserves judgment until all evidence is in regarding policy violation.

Positive Expectations is coded negatively when:

D. The nurse looks down on a person as being incapable.*

E. The nurse treats a person as a member of a class rather than as an individual (stereotypes) or generalizes from individual to group behavior.*

*Criteria stated for positive categories are not used for negative scoring.

V. INDEPENDENCE

Independence is coded positively when the nurse takes an action when there is no external pressure to do so. Independence is coded positively when:

A. The nurse takes an advocacy role for a patient or subordinate.

B. The nurse takes responsibility for her own judgment and acts independently.

Independence is coded negatively when:

C. The nurse avoids taking responsibility for her own judgment and/or gives up.*

*Criteria stated for positive categories are not used for negative coding.

VI. REFLECTIVE THINKING

Reflective Thinking is coded when the nurse identifies and reflects upon her own behavior, feelings, or beliefs and their consequences. It may include reflecting upon a weakness or mistake, and must result in the nurse showing new insight or searching for new insight.

VII. HELPING

Helping is coded when the nurse takes action to help a patient or subordinate personally or demonstrates a concern for the other person's needs. (There must be evidence that both the nurse and the person she is helping are seeking the same goal.)

Helping is coded when:

A. The nurse listens actively and attentively. (There need not be evidence that the person she is listening to recognizes this behavior on the part of the nurse.)

B. The nurse searches for methods of establishing rapport.

C. The nurse provides valid information.

D. The nurse acknowledges the needs of another. (This requires evidence from the person whose needs are being acknowledged that s/he recognizes the acknowledgment.)

E. The nurse searches to understand the other's perspective.

F. The nurse acknowledges the needs of another. (This does not require evidence from the person whose needs are being acknowledged that s/he recognizes the acknowledgment.)

VIII. INFLUENCING

Influencing is coded when the nurse shows a concern for changing the attitude or behavior of others for a purpose. (There must be evidence that these others are not seeking the same goal the nurse is seeking for them.)

Influencing is coded when:

A. The nurse attempts to persuade someone to follow her example.

B. The nurse provides a rationale for the desired behavior, including appealing to a higher motive.

C. The nurse persuades by a variety of strategies or searches for one strategy from alternatives.

D. The nurse uses a strategy to refocus from negative emotions to more constructive issues.

E. The nurse provides valid information in order to change attitude or behavior.

IX. COACHING

Coaching is coded when the nurse uses any of a variety of strategies to instruct, train, or encourage patients or subordinates to accept more responsibility for themselves or for their jobs. Coaching can also be seen as a specialized form of INFLUENCING in that the strategies used are ways to influence combined with the motive to increase the other's responsibility.

Coaching is coded when:

A. The nurse gradually increases the responsibility for tasks or for self-care.

B. The nurse rewards desirable behavior or gives positive feedback in other ways.

C. The nurse provides information to increase the other's responsibility.

D. The nurse fits a task to a perceived interest in a subordinate or patient.

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